Health Effects of Wildfire Smoke
Questions and Answers

What's in smoke from a wildfire?
Smoke contains is made up primarily of carbon dioxide, water vapor, carbon monoxide, particulate matter, hydrocarbons and other organics, nitrogen oxides and trace minerals.

Is wildfire smoke bad for me?
Yes. Avoid breathing smoke if you can help it. If you are healthy, you usually are not at major risk from smoke. But there are people who are at risk, including people with heart or lung diseases, such as congestive heart disease, asthma, or chronic obstructive pulmonary disease (such as emphysema or chronic bronchitis). Children and the elderly also are more susceptible to smoke.

***How* does smoke harm my health?**
One of the biggest dangers of smoke comes from particulate matter -- solid particles and liquid droplets found in air. In smoke, these particles often are very tiny, smaller than 2.5 micrometers in diameter. How small is that? Think of this: the diameter of the average human hair is about 30 times bigger.

These particles can build up in your respiratory system, causing a number of health problems, including burning eyes, runny noses and illnesses such as bronchitis. The particles also can aggravate heart and lung diseases, such as congestive heart failure, chronic obstructive pulmonary disease, emphysema and asthma.

Are the effects of smoke permanent?
Healthy adults generally find that their symptoms (runny noses, coughing, etc.) disappear within a couple of weeks after the smoke is gone. Long-term health effects of wildfire smoke are not fully understood.

How do I know if I'm being affected?
If you're healthy, you may have a scratchy throat, cough, irritated sinuses, headaches, runny nose and stinging eyes.

If you have lung disease, such as asthma or chronic bronchitis, you may find your symptoms worsening. And if you have heart disease, you may experience symptoms such as chest pain, unusual lightheadedness or fatigue, or irregular heartbeats. If you experience any of these symptoms, call your doctor.

How can I protect myself?
- Use common sense. If it looks smoky outside, that's probably not a good time to go for a run. And it's probably a good time for your children not to play outdoors.

- Assess the visibility levels to make safe determinations about your and your children's activity levels. Use the health department's *air quality visibility guide* located at the "public health information" page at www.gallatin.mt.gov/health.

- Listen to your local air quality reports for information about what measures you should take. Check Montana Department of Environmental Quality's (DEQ) website for daily air quality updates during the fire season: http://www.deq.mt.gov/FireUpdates/index.asp

- If you're advised to stay indoors, keep your windows and doors closed if it is cool enough. Run your air conditioner, if you have one. Keep the fresh air intake closed (use the re-circulate mode), and keep the filter clean. *Note: Be careful to avoid heat stress.* In hot weather, you may need to leave the windows open.

- Help keep down particle levels inside by avoiding using anything that burns, such as wood stoves and gas stoves, even candles. And don't vacuum.

- Don't smoke. That puts even more pollution in your lungs and those of the people around you.

- If you have asthma, follow your asthma management plan. Be vigilant about taking your medicines, as prescribed by your doctor. If you're supposed to measure your peak flows, make sure you do so. Call your doctor if your symptoms worsen.

- If you have heart or lung disease, call your doctor if you experience any symptoms.

How can I protect my children?
When smoke levels are high, consider keeping your child from participating in vigorous exercise or play, especially if your child has asthma. When people exert themselves vigorously, they draw more air and more pollution into their lungs. Consider limiting your child's participation in sports. You also can ask your coach to rotate players frequently.

How can I tell when smoke levels are dangerous? I don't live near a monitor.
Generally, worse visibility means worse smoke levels. Smoke particles scatter light extremely well, so as smoke concentrations increase, visibility changes dramatically (and predictably). As a result, you can use visibility as a guide to judge smoke concentrations:

When should I leave home and seek better shelter?

The tiny particles in smoke do get inside your home and can build up indoors. But you should consider a number of factors before leaving, including your health, options for better shelter, and visibility. If you have symptoms indoors (coughing, burning eyes, runny nose, chest pain, lightheadedness, etc.), talk with your doctor or call your county health department about whether leaving your home is the best option for you. This is particularly important for people with heart or respiratory diseases, the elderly and children. If you do leave your home, please be cautious: driving in heavy smoke can be hazardous.

Do air filters help?
They do. Indoor air filtration devices with HEPA filters can reduce the levels of particles indoors. Make sure to change your HEPA filter regularly. Don't use an air cleaner that works by generating ozone. That puts more pollution in your home. Make sure your air filter is the right size for the room. Filters won't work properly if they are too small.

Do dust masks help?
Paper "comfort" or nuisance masks are designed to trap large dust particles -- not the tiny particles found in smoke. These masks generally will not protect your lungs from wildfire smoke.

I'm concerned about what the smoke is doing to my animals. What can I do?
The same particles that cause problems for people may cause some problems for animals. Don't force your animals to run or work in smoky conditions. Contact your veterinarian or county extension office for more information.